Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1 (original): A method for preparing a substrate for detecting at least one analyte in a sample comprising the steps of:

a) exposing the sample to at least two different selectivity conditions, each selectivity condition defined by the combination of an adsorbent and an eluant, to allow retention of the analyte by the adsorbent;

b) identifying by desorption spectrometry at least one selectivity condition under which the analyte is retained; and

c) preparing a substrate comprising at least one adsorbent of an identified selectivity condition.

2 (original): The method of claim 1 wherein the step of identifying comprises identifying at least one selectivity condition under which a plurality of analytes are retained.

3 (original): The method of claim 1 wherein the step of preparing comprises preparing a substrate comprising a plurality of adsorbents that retain the analyte under an elution condition as a multiplex adsorbent.

4 (withdrawn): A method for progressively identifying a selectivity condition with improved resolution for an analyte in a sample comprising the steps of:

(a) identify a selectivity condition that retains an analyte in a sample by:

(i) exposing a sample to a set of selectivity conditions, each selectivity condition defined by at least one binding characteristic and at least one elution characteristic;

(ii) detecting analyte retained under each selectivity condition by desorption spectrometry; and

(iii) identifying a selectivity condition that retains the analyte; and

(b) identifying a selectivity condition with improved resolution for the analyte by:

(i) selecting at least one binding characteristic or elution characteristic from the identified selectivity condition and adding it to a selectivity characteristic constant set;

(ii) exposing the sample to a modified set of selectivity conditions wherein each selectivity condition in the modified set comprises (1) the selectivity characteristics in the constant set and (2) a binding characteristic or elution characteristic that is not in the constant set; and

(iii) identifying a selectivity condition from the modified set by desorption spectrometry that retains the analyte with improved resolution compared with a prior identified selectivity condition.

5 (withdrawn): The method of claim 4 further comprising the step of repeating step (b) at least once.

6 (withdrawn): The method of claim 5 comprising repeating step (b) until a selectivity condition is identified that retains only the target analyte from the sample.

7 (withdrawn): A substrate for desorption spectrometry comprising an adsorbent from a selectivity condition identified to resolve an analyte by the method of claim 4.

8 (withdrawn): The substrate of claim 7 in the form of a kit further comprising an eluant from the selectivity condition or instructions on using the eluant in combination with the adsorbent.

9 (withdrawn): A method for determining whether an analyte is differentially present in a first and second biological sample comprising the steps of:

a) determining a first retention map for the analyte in the first sample for at least one selectivity condition;

b) determining a second retention map for the analyte in the second sample for the same selectivity condition; and

c) detecting a difference between the first and the second retention maps;

whereby a difference in the retention maps provides a determination that the analyte is differentially present in first and second samples.

10 (withdrawn): The method of claim 9 wherein the first biological sample derives from a healthy subject and the second biological sample is from a subject suffering from a pathological condition.

11 (withdrawn): The method of claim 9 wherein the biological samples comprise first and second cell extracts.

12 (withdrawn): The method of claim 9 wherein the retention map comprises a plurality of selectivity conditions.

13 (withdrawn): The method of claim 9 comprising, before the step of detecting, the step of converting the analyte into at least one fragment whose molecular mass smaller than the mass of the analyte.

14 (withdrawn): The method of claim 9 wherein the step of detecting a difference is performed in a programmable digital computer.

15 (withdrawn): The method of claim 9 for determining whether an agent alters the expression of a protein in a biological sample further comprising the step of administering the agent to a first biological sample but not to a second biological sample.

16 (withdrawn): The method of claim 10 wherein the sample is selected from the group consisting of blood, urine, serum and tissue.

17 (withdrawn): The method of claim 10 further comprising identifying an analyte that is present in a greater amount in second biological sample than in the first biological sample, whereby the analyte is identified as a candidate diagnostic marker for the pathological condition.

18 (withdrawn): The method of claim 11 wherein the first cell extract is derived from a healthy cell and the second cell extract is derived from a cancer cell.

19 (withdrawn): A method of diagnosing in a subject a disease characterized by at least one diagnostic marker comprising the steps of:

a) providing a substrate for use in desorption spectrometry that comprises at least one addressable location, each addressable location comprising an adsorbent that resolves at least one of the diagnostic markers under an elution condition;

b) exposing the substrate to a biological sample from the subject under the elution condition to allow retention of the diagnostic marker; and

c) detecting retained diagnostic marker by desorption spectrometry;

whereby detecting retained diagnostic marker provides a diagnosis of the disease.

20 (withdrawn): The method of claim 19 wherein diagnosis involves detection of a plurality of diagnostic markers and the addressable locations comprise adsorbents that resolve the plurality of diagnostic markers.

21 (withdrawn): A kit for detecting an analyte in a sample comprising (1) a substrate for use in desorption spectrometry that comprises at least one addressable location, each addressable location comprising an adsorbent that resolves an analyte under a selectivity condition comprising the adsorbent and an eluant, and (2) the eluant or instructions for exposing the sample to the selectivity condition.

22 (withdrawn): The kit of claim 21 for the diagnosis of a disease wherein the at least one analyte is at least one diagnostic marker for the disease.

23 (withdrawn): The kit of claim 22 wherein the disease characterized by a plurality of diagnostic markers and the substrate comprises a plurality of addressable locations, each addressable location comprising an adsorbent that resolves at least one of the diagnostic markers.

24 (withdrawn): The kit of claim 23 wherein at least one adsorbent is a multiplex adsorbent comprising adsorbent species that each retain at least one diagnostic marker.

25 (withdrawn): The kit of claim 23 wherein at least one adsorbent does not comprise a biopolymer.

26 (withdrawn): The kit of claim 23 wherein at least one addressable location comprises a ligand specific for a diagnostic marker.

27 (withdrawn): The kit of claim 26 wherein the ligand is an antibody.

28 (withdrawn): A substrate for desorption spectrometry comprising at least one adsorbent in at least one addressable location wherein the at least one adsorbent resolves a plurality of diagnostic markers for a pathological condition from a patient sample.

29 (withdrawn): The substrate of claim 28 wherein at least one adsorbent does not comprise a biopolymer.

30 (withdrawn): The substrate of claim 28 wherein one adsorbent resolves the plurality of diagnostic markers.